THE ROLE OF GROUND COMBAT SYSTEMS IN THE ARMY'S TRANSFORMATION

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Introduction

On Oct. 12, 1999, Army Chief of Staff GEN Eric K. Shinseki unveiled the Army's vision of transformation to a lighter, more deployable "objective" force:

"*We must provide early entry forces that can operate jointly, without access to fixed forward bases, but we still need the power to slug it out and win decisively. ... Our intent is to transform the Army into a more lethal and effective force equipped with internetted communications and intelligence systems [the objective force]. Once equipped with the Future Combat Systems [FCS], these brigades will be able to deploy anywhere in the world within 96 hours, a division in 120 hours, and five divisions in 30 days.*"

The Army's fundamental purpose—fighting and winning the Nation's wars—will remain unchanged. The Army's transformation to the objective force does not release it from its commitment to the national military strategy. As the Army embarks on the road to transformation, its leaders must remember that potential adversaries will not take a hiatus as the Army transitions to the objective force.

Balancing the seemingly conflicting missions of remaining currently capable while preparing for the future is the responsibility of various combined resources headquartered at Army facilities in Warren, MI. The Tank-automotive and Armaments Command (TACOM) and its sister organizations—the Tank Automotive Research, Development and Engineering Center (TARDEC); the Program Executive Office for Ground Combat and Support Systems (PEO, GCSS); and the remotely located Armament Research, Development and Engineering Center (ARDEC) (Picatinny Arsenal, NJ)—tightly integrate these missions. This complex management task is accomplished through the use of innovative teaming concepts and flexible organizational structures administered by skilled and experienced military, civilian, and contractor employees.

Legacy Force

The force structure in place today is referred to as the legacy force. The legacy force was the strategic hedge that provided our warfighting readiness in support of the national command authorities and warfighting commanders-in-chief. The Army must modernize, sustain, and recapitalize the legacy force to guarantee maintenance of our critical warfighting readiness, and TACOM is critical to that mission. Improving reliability and reducing support costs is the first leg of a management model that embraces all components of the ground fleet. Soldiers' survivability must be maintained as the Army transitions to a lighter, more mobile force. Next, limited mobility and lethality upgrades must be included to maintain overmatch capabilities. Finally, selective component modernization must be made to combat obsolescence and increase the ability to quickly field retrofit capability upgrades.

Integrated Management

The Abrams tank contributes significantly to maintaining today's battlespace dominance by overmatching potential adversaries. The overmatching capability of the Abrams will be protected. Similar efforts must also be performed on other programs managed in either Warren or Picatinny Arsenal. The M1A1 Abrams Integrated Management (AIM) recapitalization effort ensures warfighting readiness of the tank force throughout the transformation period. AIM slows the escalation of annual operations and support costs and reduces the Army's logistics footprint. AIM is a contractor and Army depot partnership that rebuilds older M1A1 tanks to a nearly new condition. This unique depot-contractor partnership greatly enhances the Army's ability to both sustain the existing fleet and field the interim and objective forces. The partnership preserves the industrial base capability that will be required for the objective force. At the same time, the partnership ensures that the proven capabilities of the Army's depots will remain viable by continuously upgrading their skill sets as the Army becomes an information-based force. AIM product output will incorporate battlefield situational awareness to ensure adequate overmatch capability as the legacy force transforms into the counter attack corps.

Common Engine

The Abrams-Crusader Common Engine Program provides significant improvement in engine reliability, supportability, and maintainability without sacrificing performance. As an added benefit, engine commonality among Abrams, Crusader, and Wolverine will reduce the support burden in the field. Each component of the legacy force has a similar program of cost-effective upgrades and teamed contractor and depot efforts to ensure that the Army will continue to maintain land-power dominance throughout objective force development and deployment. Using this common management model across the fleet allows the Army to maintain product quality and communication compatibility. The field soldier remains certain that neither system management (the program executive officer or TACOM's Deputy for Systems Acquisition (DSA)) nor facility location (the contractor's facility or an Army depot) will negatively impact hardware, communications, or software capability.

Overmatching land power has always been a key element in the execution of our national military strategy. The

nature of warfare will change during the 21st century as the division among strategic, operational, and tactical levels of war blurs. America's 21st century Army will integrate emerging information technologies with sound doctrine, reinvented organizations, and quality people to make tomorrow's smaller force more lethal, more survivable, more versatile, and more deployable.

Crusader

Two current programs are incorporating this multipronged approach to maintain force capability—the Crusader Self-Propelled Howitzer (SPH) and the Joint Lightweight 155mm Howitzer (JLW-155). For the heavier counter attack corps, the Crusader (scheduled for fielding in 2008) is not just a weapons platform—it is a "system of systems." The Crusader consists of a 40-ton, fully automated SPH, a companion 40-ton resupply vehicle-tracked, and a 20-ton resupply vehicle-wheeled. Crusader supports all three axes of the transformation roadmap by pushing state-of-the-art technology development for the objective force and filling a critical fire support void for the legacy and interim forces.

Lessons learned from the integration and development of Crusader's software and electronics operating system, robotics, and crew cockpit directly support and reduce the risk associated with the FCS evolution. Crusader will include a real-time common operating environment that separates systems software and electronics with a "middleware." This separation allows either software or electronics to be upgraded without significantly impacting the other. This operating system significantly reduces life-cycle costs and eases the upgrade process.

Additionally, Crusader's crew cockpit is a self-contained, state-of-the-art environment. By melding information technology, ergonomics, and manpower and personnel integration into a fully integrated system, the cockpit system takes advantage of efficiently processed information concerning vehicle status and the combat situation. This information processing, combined with robotic controls, frees the crew from the burden of physically firing the system—the Crusader commander and crew are tacticians rather than technicians. Crusader is the future of field artillery and is charting the path for the FCS.

JLW Howitzer

The JLW-155 (2005 fielding) will provide close and deep fires supporting the maneuver forces of both the Army and the Marine Corps. The JLW-155 consists of the fully integrated towed XM777 LW 155mm Howitzer and a digital fire control (TAD—Towed Artillery Digitization). Using the same software and automated information processing technology as the Crusader, the Army will use the JLW-155 as the single direct support cannon for both the interim force and the objective force. This will make it the first system of its kind fielded for the objective force. The XM777 Howitzer will provide the Army's transition forces with dramatically enhanced strategic deployment and tactical mobility over existing hardware.

Brigade Combat Team

The Brigade Combat Team (BCT) will allow the Army to field a credible conventional capability. The BCT force mix of 10 variants includes artillery, anti-tank, infantry, reconnaissance, engineer, and medical vehicles. These initial brigades are a glimpse of the Army of the future—of an agile, adaptive, and versatile force. The BCT will provide key developmental insights into the doctrine, training, organization, and leader development of the objective force. Units will be able to mass the effects of weapons through better organization of flexible, tailored task forces.

While the BCT multivariant force mix will be the first organizational unit to exploit this capability, the objective force must provide the Army with a significant combat overmatch against all foreseeable enemies. The FCS is envisioned as a system of assets with integrated and interlinked capabilities. Whether in the air or on the ground, whether manned or unmanned, the FCS will be overwhelmingly lethal, possess totally interlinked communications capabilities, and will be difficult to detect across all spectra. It must provide for rapid unit deployment and successful offensive, defensive, and stable and support operations. At the same time, it must use smaller combat formations capable of very high operational tempo while requiring a significantly lower logistical support structure. It must enable a brigade-sized force to be deployed in 96 hours or less. Advanced technology will maximize the benefits of maneuver by increasing the tempo of operations and by improving the ability to function day or night and under adverse weather conditions.

Conclusion

With its boots firmly planted in the realities of today's world, the Army is planning for the future. The information age is upon us, and the force is changing to meet the challenges of this new era. The technology that fuels the information explosion must be harnessed. Transforming the premier Cold War, industrial-age Army to the premier 21st century information-age force will require extensive training and major changes in tactics, organizations, doctrine, equipment, force mixes, and methods of command and control. The future force must be fully mobile, completely air-deployable, and equally adept in complex urban and open terrain. Integrative technologies and enhanced situational awareness will have a profound effect that will allow both the commander and the individual soldier to visualize the current state of friendly and enemy forces, weather, and terrain. The PEO, GCSS; TARDEC; ARDEC; and TACOM are using teamwork, program management, technology development, and integration experience to lead the way to make the daunting challenge of the Chief of Staff's vision a reality.

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